

WHAT IS CLAIMED IS:

1. A system, comprising:
 - a client for making a request and receiving a response;
 - a web server for forwarding the request from the client and forwarding the response to the client using a web protocol;
 - an event producer for updating a message board;
 - a remote messaging facility server connecting to the web server for receiving the request from the client and for generating the response based on said request, said response being generated with respect to an event subscribed by the client and triggered by said updating performed by the event producer on the message board, said response being sent to the client via the web server.
2. The system according to claim 1, wherein said client comprises:
 - a web client for initiating the request and for receiving the response; and
 - a remote messaging facility client, connecting to the web client, for managing, on behalf of the web client, a 2-way communication between the web client and the event producer via the web server and the remote messaging facility server.
3. The system according to claim 2, wherein said web client includes an event listener.
4. A remote messaging facility client, comprising:

a session agent for managing a remote messaging session established between a web client and an event producer and for maintaining a persistent listening connection that listens to an event subscribed by the web client with a remote messaging facility server;

a messaging agent for communicating with the remote messaging facility server on behalf of the web client during the remote messaging session, sending a request from the web client to the remote messaging facility server and receiving a response from the remote messaging facility server;

a message parser for parsing a response received by the messaging agent from the remote messaging facility server; and

an event manager for managing event subscription and dispatching of an event that is subscribed by the web client, received as a response from the remote messaging facility server, and parsed by the message parser.

5. The system according to claim 4, further comprising:

a remote messaging facility client application programming interface, through which the web client communicates with the remote messaging facility client to issue a request, to subscribe an event, and to receive a response from the remote messaging facility server from the event manager.

6. A remote messaging facility server, comprising:

a session manager for managing a remote messaging session established with a web client via a remote messaging facility client and for maintaining a persistent listening connection that listens to an event subscribed by the web client, said web client issuing

requests and receiving responses during the remote messaging session via the remote messaging facility client;

a channel manager for managing zero or more channels designed for subscriptions of events, said managing associating each subscription with a channel to store the occurrences of the subscribed event and dispatching each stored event to the remote messaging facility client that represents the web client that subscribes the stored event; and

a message board comprising a plurality of slots for storing data, said data being manipulated by at least one event producer, manipulations of the data in said message board triggering different events.

7. The system according to claim 6, further comprising:

a message parser for parsing a request issued by a web client via a remote messaging facility client prior to generating a response for the request; and

a plurality of listener agents, each of which corresponding to a different slot in the message board and connecting to at least one channel that store subscribed event related to the slot, each listener agent listening to the subscribed event occurred in the slot and sending the subscribed event to a corresponding channel.

8. The system according to claim 7, further comprising:

a producer registry for registering the at least one event producer;

an access control profile for recording access control information used by said session manager in managing a remote messaging session for a web client; and

a base filter agent, connecting to the listener agents, for filtering a subscribed event prior to sending the subscribed event to a corresponding channel.

9. The system according to claim 8, further comprising:

a remote messaging facility server application programming interface, through which the at least one event producer communicates with the remote messaging facility server to register, to manipulate the message board, and to communicate with the web client.

10. An event producer, comprising:

a data generator for generating data to be posted on a message board of a remote messaging facility server; and

a data manipulator for manipulating the message board using the data generated by the data generator.

11. The system according to claim 10, further comprising:

a session agent for performing authentication on a web client that requests to establish a remote messaging session between the web client and the event producer via a remote messaging facility client and the remote messaging facility server, said authentication being requested by the remote messaging facility server; and

a filter agent for filtering an event that is to be sent from the remote messaging facility server to the web client via the remote messaging facility client.

12. A method for web-enabled 2-way remote messaging, comprising:

establishing a remote messaging session between a web client and an event provider via a remote messaging facility client, connecting to the web client, and a remote messaging facility server, connecting to the event producer, the web client issuing requests and receiving responses during the remote messaging session;

subscribing, by the web client via the remote messaging facility client, an event that is related to an action performed by the event producer on a slot of a message board located in the remote messaging facility server;

listening, by a listener agent in the remote messaging facility server, the event, the listener agent connecting to a channel, dedicated to the web client, and the slot, the listener agent receiving a notification when the action associated with the event is performed by the event producer on the slot; and

dispatching the notification from the remote messaging facility server to the web client via a web server and the remote messaging facility client, said notification being encoded by the web server using a web protocol to generate a response.

13. The method according to claim 12, wherein said requests includes at least one of:
- a begin session request to start a remote messaging session;
 - an end session request to finish a remote messaging session;
 - a check session request to examine the status of a remote messaging session;
 - a subscribe event request to subscribe an event with the remote messaging facility server;
 - an unsubscribe event request to end a subscription of an event with the remote messaging facility server;

a query data request to inquiry a data item in the message board;
an listen event request to start a listening connection; and
a post message request to post a message from the web client to a message handler
associated with a slot in the message board.

14. The method according to claim 13, wherein said requests are encoded using a web protocol.

15. The method according to claim 14, wherein said responses are encoded by said web server using a web protocol.

16. The method according to claim 15, wherein
said web protocol used to encode the requests includes HyperText Transport Protocol;
and
said web protocol used by said web server to encode the responses includes HyperText Transport Protocol.

17. The method according to claim 14, wherein said establishing comprises:
sending a begin session request, by the web client via the remote messaging facility client and the web server, to the remote messaging facility server to establish the remote messaging session;
authenticating the web client with respect to the event producer to generate a decision of either positive or negative; and

starting, by a session manager in the remote messaging facility server, the remote messaging session if the decision is positive.

18. The method according to claim 17, wherein said subscribing comprises:

sending a subscribe event request to the session manager to subscribe the event, the subscribe event request specifying the slot and the action;

setting up, by the session manager, a channel to store the occurrences of the event; and

connecting the channel with the listener agent associated with the slot of the message board.

19. The method according to claim 17, wherein said listening comprises:

sending an listen event request to the remote messaging facility server;

setting up a listening connection, for the event subscribed in said subscribing, said listening connection associating with the channel dedicated to the web client;

monitoring, by the listener agent connecting to both the channel and the slot, the action performed by the event producer on the slot that triggers the event;

receiving the notification corresponding to the subscribed event when the action is performed by said event producer; and

adding, by the listener agent, the notification to the channel.

20. The method according to claim 19, further comprising filtering the notification prior to adding the notification to the channel.

21. The method according to claim 19, wherein said dispatching comprises:

forwarding, by a channel manager that manages the channel, the notification to the web server;

encoding, by the web server, the notification using the web protocol to generate the response; and

sending the response to the web client via the remote messaging facility client.

22. A method for a remote messaging facility client, comprising:

sending a begin session request for a web client, to a remote messaging facility server via a web server to establish a remote messaging session;

sending, if the remote messaging session requested by the begin session request is established, a subscribe event request to the remote messaging facility server to subscribe an event, the subscribe event request specifying a slot on a message board in the remote messaging facility server and an action wherein the event is defined with respect to the action performed on the slot by an event producer;

receiving a response from the remote messaging facility server via the web server, said response encoding a notification of the event subscribed using a web protocol; and

dispatching the notification to the web client.

23. The method according to claim 22, further comprising:

sending an listen event request to the remote messaging facility server, prior to said receiving, to establish an listening connection to listen to the event;

decoding the response, after said receiving, according to the web protocol to obtain the event; and

parsing the notification prior to said dispatching the notification to the web client.

24. A method for a remote messaging facility server, comprising:

establishing a remote messaging session based on a begin session request sent from a web client via a remote messaging facility client and a web server;

subscribing an event based on a subscribe event request specifying a slot on a message board in the remote messaging facility server and an action, wherein the event is defined with respect to the action performed on the slot by an event producer;

listening, by an listener agent activated by an listen event request, the event, the listener agent connecting to a channel set up for the remote messaging session and to the slot and generating a notification of the event when the action associated with the event is performed on the slot by the event producer; and

dispatching the notification of the event to the web client as a response via the web server and the remote messaging facility client, said notification being encoded by the web server using a web protocol to generate the response.

25. The method according to claim 24, wherein the establishing comprises:

receiving the begin session request from the web client,

authenticating the web client; and

starting the remote messaging session if the authentication passes.

26. The method according to claim 24, wherein the subscribing comprises:
receiving the subscribe event request from the web client;
setting up a channel associating with the remote messaging session; and
connecting the channel with a listener agent associated with the slot of the message board.
27. The method according to claim 24, wherein the listening comprises:
monitoring the slot on the message board to observe the event related to the action to be performed by the event producer on the slot;
receiving the notification when the event is observed; and
adding the notification to the channel set up for the remote messaging session.
28. The method according to claim 27, further comprising:
filtering, by a filter agent, the notification prior to said adding.
29. The method according to claim 24, wherein said dispatching comprises:
forwarding, by the channel, the notification to the web server;
encoding, by the web server, the notification using the web protocol to generate the response; and
sending the response to the web client via the remote messaging facility client.
30. The method according to claim 24, further comprising registering the event producer with the message board in the remote messaging facility server.

31. The method according to claim 30, further comprising
specifying a session agent that authenticates a web client for the event producer; and
specifying a filtering agent that filters an observed event associated with the event
producer.

32. The method according to claim 30, further comprising updating, by an event
producer, a slot of the message board.

33. A method for an event producer, comprising:
registering with a message board of a remote messaging facility server; and
updating a slot of the message board.

34. The method according to claim 33, wherein said updating includes at least one of:
creating a slot;
clearing a slot;
deleting a slot;
posting data in a slot;
deleting data in a slot; and
changing data in a slot.

35. The method according to claim 33, further comprising:
setting up an access control profile.

36. The method according to claim 35, further comprising:
specifying a session agent that authenticates a web client for the event producer; and
specifying a filter agent that filters an observed event associated with the event
producer.

37. The method according to claim 36, further comprising:
receiving a request, after said specifying a session agent, from the remote messaging
facility server to authenticate a web client, said web client requesting to establish a remote
messaging session with the remote messaging facility server;
authenticating, by said session agent, the web client according to the access control
profile.

38. The method according to claim 36, further comprising:
receiving a request, after said specifying a filter agent, from an listener agent in the
remote messaging facility server to filter a notification of an event associated with the event
producer; and
filtering the notification.

39. A computer-readable medium encoded with a program for web-enabled 2-way
remote messaging, said program comprising:
establishing a remote messaging session between a web client and an event provider
via a remote messaging facility client, connecting to the web client, and a remote messaging

facility server, connecting to the event producer, the web client issuing requests and receiving responses during the remote messaging session;

subscribing, by the web client via the remote messaging facility client, an event that is related to an action performed by the event producer on a slot of a message board located in the remote messaging facility server;

listening, by a listener agent in the remote messaging facility server, the event, the listener agent connecting to a channel, dedicated to the web client, and the slot, the listener agent receiving a notification when the action associated with the event is performed by the event producer on the slot; and

dispatching the notification from the remote messaging facility server to the web client via a web server and the remote messaging facility client, said notification being encoded by the web server using a web protocol to generate a response.

40. The medium according to claim 39, wherein said establishing comprises:

sending a begin session request, by the web client via the remote messaging facility client and the web server, to the remote messaging facility server to establish the remote messaging session;

authenticating the web client with respect to the event producer to generate a decision of either positive or negative; and

starting, by a session manager in the remote messaging facility server, the remote messaging session if the decision is positive.

41. The medium according to claim 39, wherein said subscribing comprises:

sending a subscribe event request to the session manager to subscribe the event, the subscribe event request specifying the slot and the action;
setting up, by the session manager, a channel to store the occurrences of the event; and
connecting the channel with the listener agent associated with the slot of the message board.

42. The medium according to claim 39, wherein said listening comprises:
sending an listen event request to the remote messaging facility server;
setting up a listening connection, for the event subscribed in said subscribing, said listening connection associating with the channel dedicated to the web client;
monitoring, by the listender agent connecting to both the channel and the slot, the action performed by the event producer on the slot that triggers the event;
receiving the notification corresponding to the subscribed event when the action is performed by said event producer; and
adding, by the listener agent, the notification to the channel.

43. The medium according to claim 42, further comprising filtering the notification prior to adding the notification to the channel.

44. The medium according to claim 42, wherein said dispatching comprises:
forwarding, by a channel manager that manages the channel, the notification to the web server;

encoding, by the web server, the notification using the web protocol to generate the response; and

sending the response to the web client via the remote messaging facility client.

45. A computer-readable medium encoded with a program for a remote messaging facility client, said program comprising:

sending a begin session request for a web client, to a remote messaging facility server via a web server to establish a remote messaging session;

sending, if the remote messaging session requested by the begin session request is established, a subscribe event request to the remote messaging facility server to subscribe an event, the subscribe event request specifying a slot on a message board in the remote messaging facility server and an action wherein the event is defined with respect to the action performed on the slot by an event producer;

receiving a response from the remote messaging facility server via the web server, said response encoding a notification of the subscribed event using a web protocol; and

dispatching the notification to the web client.

46. The medium according to claim 45, further comprising:

sending, prior to said receiving, an listen event request to the remote messaging facility server to establish an listening connection to listen to the event;

decoding the response, after said receiving, according to the web protocol to obtain the event; and

parsing the notification, prior to said dispatching, to the web client.

47. A computer-readable medium encoded with a program for a remote messaging facility server, said program comprising:

establishing a remote messaging session based on a begin session request sent from a web client via a remote messaging facility client and a web server;

subscribing an event based on a subscribe event request specifying a slot on a message board in the remote messaging facility server and an action, wherein the event is defined with respect to the action performed on the slot by an event producer;

listening, by an listener agent activated by an listen event request, the event, the listener agent connecting to a channel set up for the remote messaging session and to the slot and generating a notification of the event when the action associated with the event is performed on the slot by the event producer; and

dispatching the notification of the event to the web client as a response via the web server and the remote messaging facility client, said observed event being encoded by the web server using a web protocol to generate the response.

48. The medium according to claim 47, wherein the establishing comprises:

receiving the begin session request from the web client,

authenticating the web client; and

starting the remote messaging session if the authentication passes.

49. The medium according to claim 47, wherein the subscribing comprises:

receiving the subscribe event request from the web client;

setting up a channel associating with the remote messaging session; and
connecting the channel with a listener agent associated with the slot of the message
board.

50. The medium according to claim 47, wherein the listening comprises:
monitoring the slot on the message board to observe the event related to the action to
be performed by the event producer on the slot;
receiving an event notification when the event is observed; and
adding the notification of the event to the channel set up for the remote messagin
session.

51. The medium according to claim 47, said program further comprising:
filtering, by a filter agent, the notification prior to said adding.

52. The method according to claim 47, wherein said dispatching comprises:
forwarding, by a channel manager that manages the channel, the notification of the
event to the web server;
encoding, by the web server, the notification of the event using the web protocol to
generate the response; and
sending the response to the web client via the remote messaging facility client.

53. The medium according to claim 47, said program further comprising registering
the event producer with the message board in the remote messaging facility server.

54. The medium according to claim 53, said program further comprising updating, by an event producer, a slot of the message board.

55. A computer-readable medium encoded with a program for an event producer, said program comprising:

registering with a message board of a remote messaging facility server; and
updating a slot of the message board.

56. The medium according to claim 55, wherein said updating includes at least one of:

creating a slot;

clearing a slot;

deleting a slot;

posting data in a slot;

deleting data in a slot; and

changing data in a slot.

57. The medium according to claim 55, said program further comprising:

setting up an access control profile associated with the event producer.

58. The medium according to claim 57, said program further comprising:

specifying a session agent that authenticates a web client for the event producer; and

specifying a filter agent that filters a notification of an event associated with the event producer.

59. The medium according to claim 58, said program further comprising:

receiving a request, after said specifying a session agent, from the remote messaging facility server to authenticate a web client, said web client requesting to establish a remote messaging session with the remote messaging facility server;

authenticating, by said session agent, the web client according to the access control profile.

60. The medium according to claim 58, said program further comprising:

receiving a request, after said specifying a filter agent, from an listener agent in the remote messaging facility server to filter a notification of an event associated with the event producer; and

filtering the notification of the event.